Continuity, Class XII, 04-04-2023

Q. A. Locate the points of discontinuity (if any):

1. $f(x) = \begin{cases} x + 2, & if\ x \leq 1 \\ x - 2, & if\ 1 < x < 2 \\ 0, & if\ x \geq 2 \end{cases}$

2. $f(x) = \begin{cases} \dfrac{x^4 - 16}{x - 2}, & x \neq 2 \\ 16, & x = 2 \end{cases}$

3. $f(x) = \begin{cases} \dfrac{\sin 3x}{x} + \cos x, & x > 0 \\ 4 - 3x, & x \leq 0 \end{cases}$

Q. B. Is the function f defined by

$f(x) = \begin{cases} \dfrac{2x^2 - 3x - 2}{x - 2}, & if\ x \neq 2 \\ 5, & if\ x = 2 \end{cases}$ continuous at $x = 2$?

Q. C. For wht value of k is the function

$f(x) = \begin{cases} \dfrac{\tan 5x}{\sin 2x}, & x \neq 0 \\ k, & x = 0 \end{cases}$ continuous at $x = 0$?